

## Supporting Methods

### LB Growth Media

For initial cultivations four different lysogeny broth (LB) cultivation media were employed that were constituted as follows: LB1 (25 g l<sup>-1</sup> ready-to-use mix Luria/Miller; Carl Roth, Karlsruhe, Germany); LB2 (10 g l<sup>-1</sup> tryptone/peptone from casein (Carl Roth, Karlsruhe, Germany), 10 g l<sup>-1</sup> NaCl, 5 g l<sup>-1</sup> yeast extract (type KAT, Ohly, Hamburg Germany); LB3 (10 g l<sup>-1</sup> peptone from casein (Carl Roth, Karlsruhe, Germany), 10 g l<sup>-1</sup> NaCl, 5 g l<sup>-1</sup> yeast extract (Carl Roth, Karlsruhe, Germany); LB4 (10 g l<sup>-1</sup> Bacto™ peptone (BD Biosciences, Franklin Lakes, NJ, USA), 10 g l<sup>-1</sup> NaCl, 5 g l<sup>-1</sup> Bacto™ yeast extract (BD Biosciences, Franklin Lakes, NJ, USA).

### Quantification of galactose, lactose and glucose

Galactose and lactose were quantified via photometric detection of NADH using a β-galactosidase, galactose mutarotase and β-galactose dehydrogenase based enzyme assay (Rapid Kit K-LACGAR; Megazyme, Ireland). For glucose measurements a hexokinase/glucose-6-phosphate dehydrogenase based assay for NADPH detection was performed as previously described [58].

### Supporting Reference

58. Richhardt J, Bringer S, Bott M. Role of the pentose phosphate pathway and the Entner-Doudoroff pathway in glucose metabolism of *Gluconobacter oxydans* 621H. Appl Microbiol Biotechnol. 2013; 97: 4315–23.